Introducing Work Item Management Concepts to the Tri-Services Facility Management Standards Task Group

Shore Station Integrated Information System

Patuxent River Naval Air Station

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Goals for the Work Item Management Construct

- ✔Develop a flexible work item management structure that supports today's and tomorrow's complex Facilities Management operating environment
- ✔Integrate CADD and GIS technology to help manage Installations and Bases better

Today's Situation

- New technology is creating opportunities to manage better
- There is a lack of connection between the work to be accomplished and the location of that work.
- There is no flexible work-item data structure in place that allows Installation management to take advantage of new technology

Vision

- Strengthen the tie between CADD & GIS based solutions and Facilities Management
- Locate Facilities Management activities (repairs, improvements, maintenance) that impact emergency response and other operational missions.
- Locate work activities at a Facility (i.e, building, structure, utility)

Vision

Business Information

- what space do I have ?
- where is the work located
- how much does it cost to maintain ?
- what's the status of planned work ?

Geospatial -Centric Facilities Management

Asset Utilization

- what work did we do on that equipment last year?
- how much is this equipment really costing us to maintain?
- how old is the Facility and where is it located ?

Facilities Management

- are we meeting our customer schedule and cost commitments?
- how much will we spend on these Facilities this year?
- what is the difference in O&M $ per square foot between Facilities A & B ?
- which customers are providing the most charge back work?
- what are the Environmental Impacts ?
- can the Utility Systems support this additional infrastructure ?

Vision

- Start simply and answer key questions:
  - What is the location of the current Facility?
  - What is the location of work activity on the Base?
  - What are all pending work item activities associated with a Facility?
  - When was the inventory affected last by a completed work item?

Objectives

- Incorporate Work Item entity set into the Tri-Services Spatial Data Standard
- Identify and exploit key links between work items and geospatial entity sets
- Work together to develop a viable solution to link work items with their geospatial characteristics

How Did We Get Here?

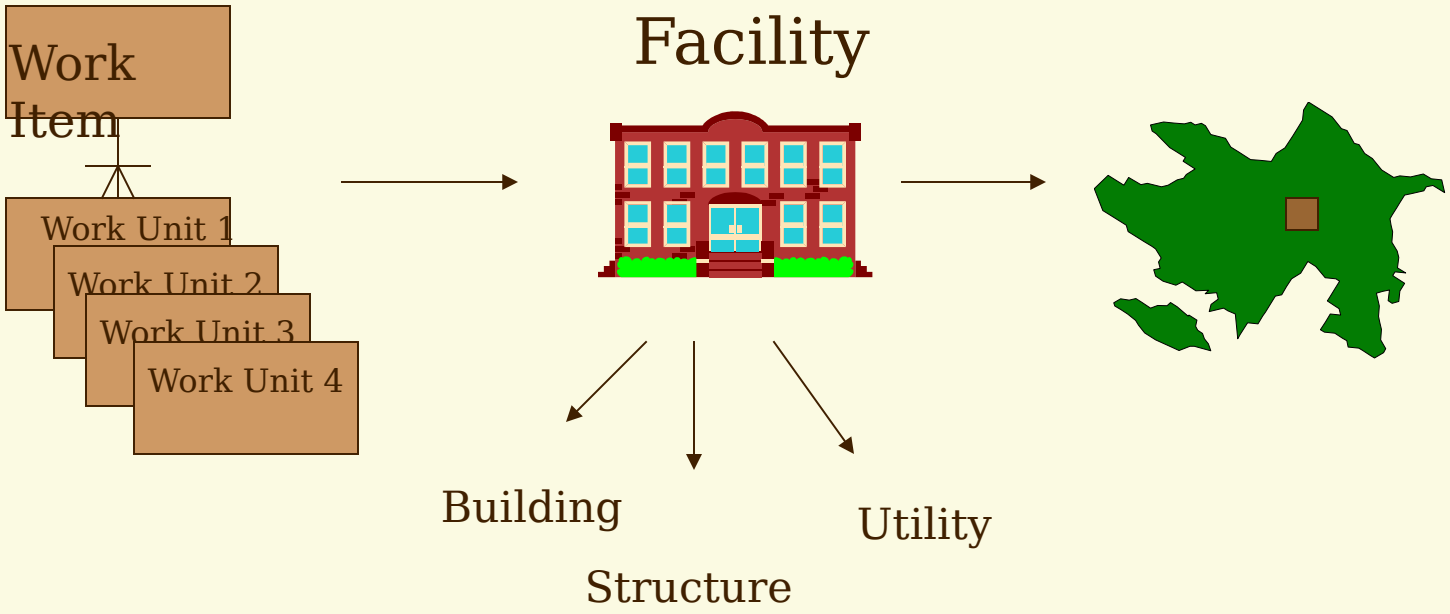
- Conducted ongoing business process mapping and data modeling at Patuxent River for the past two years.
- Completed mapping of key business processes such as As-Built, Site Approval, Special Project Approval, Dig Permits and Transition Planning using IDEFO approach.
- Developed and continue to develop a relational data model to support an enterprise-wide view of integrated information.

How Does the Work Item Concept Work?

- Spatial data Entity Sets should combine with Work-Item Entity Set to locate work and characterize the surrounding work area
- Each Work Item can have one or many Work Units
- Each Work Unit is linked to a specific location or area

Integrating the Concept with CADD and GIS

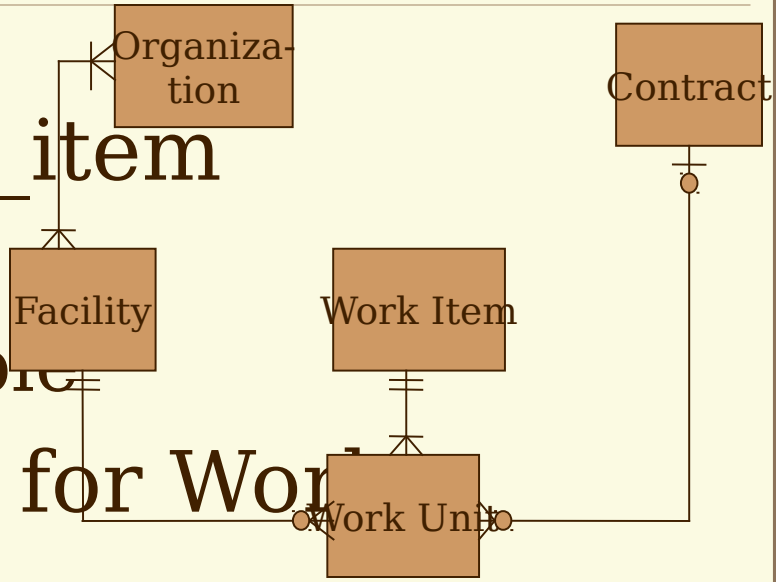
Spatial Data Stds. locate the obje



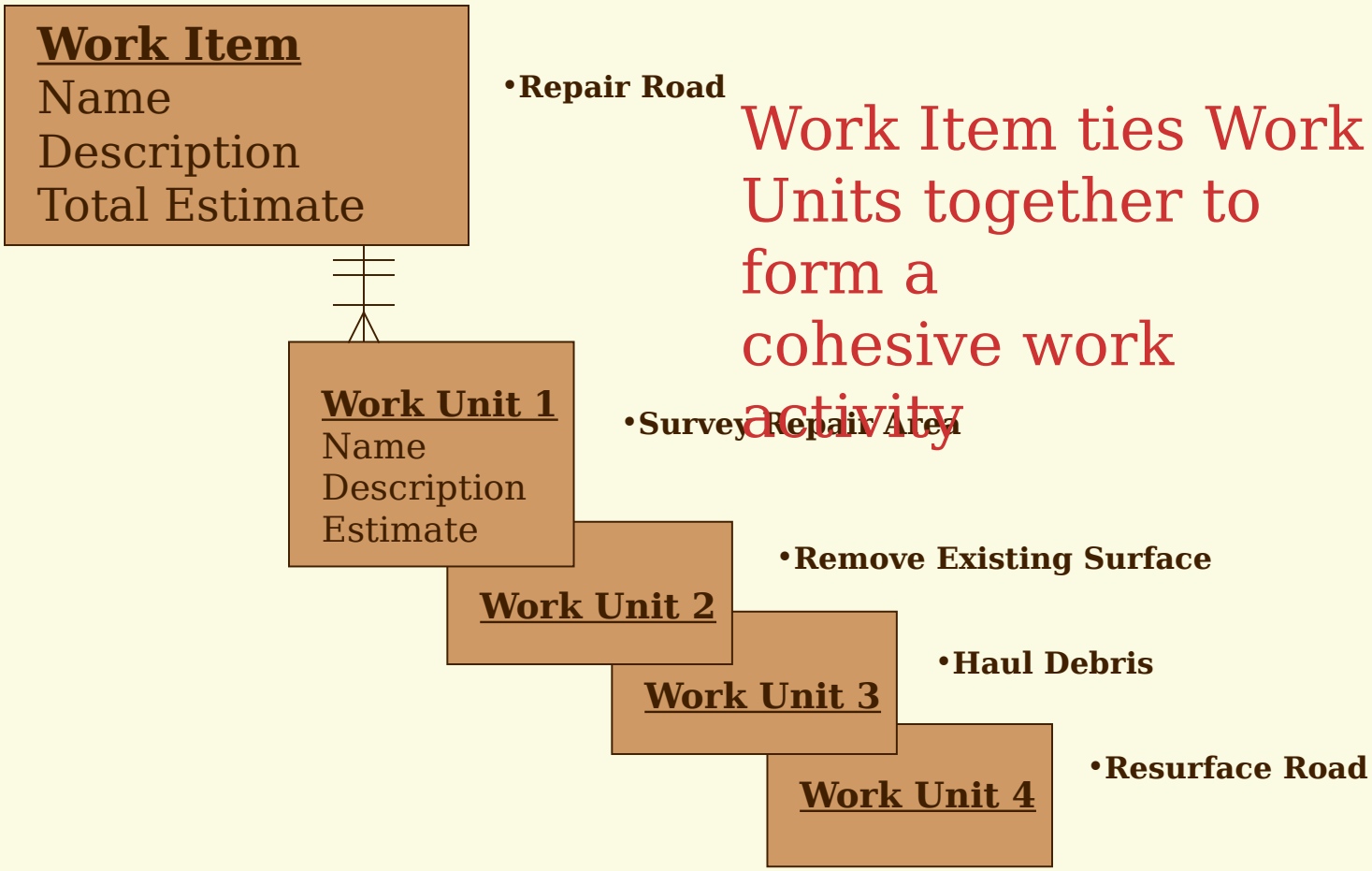
AEC CADD standards support object drawing

Model Walkthrough: Overview

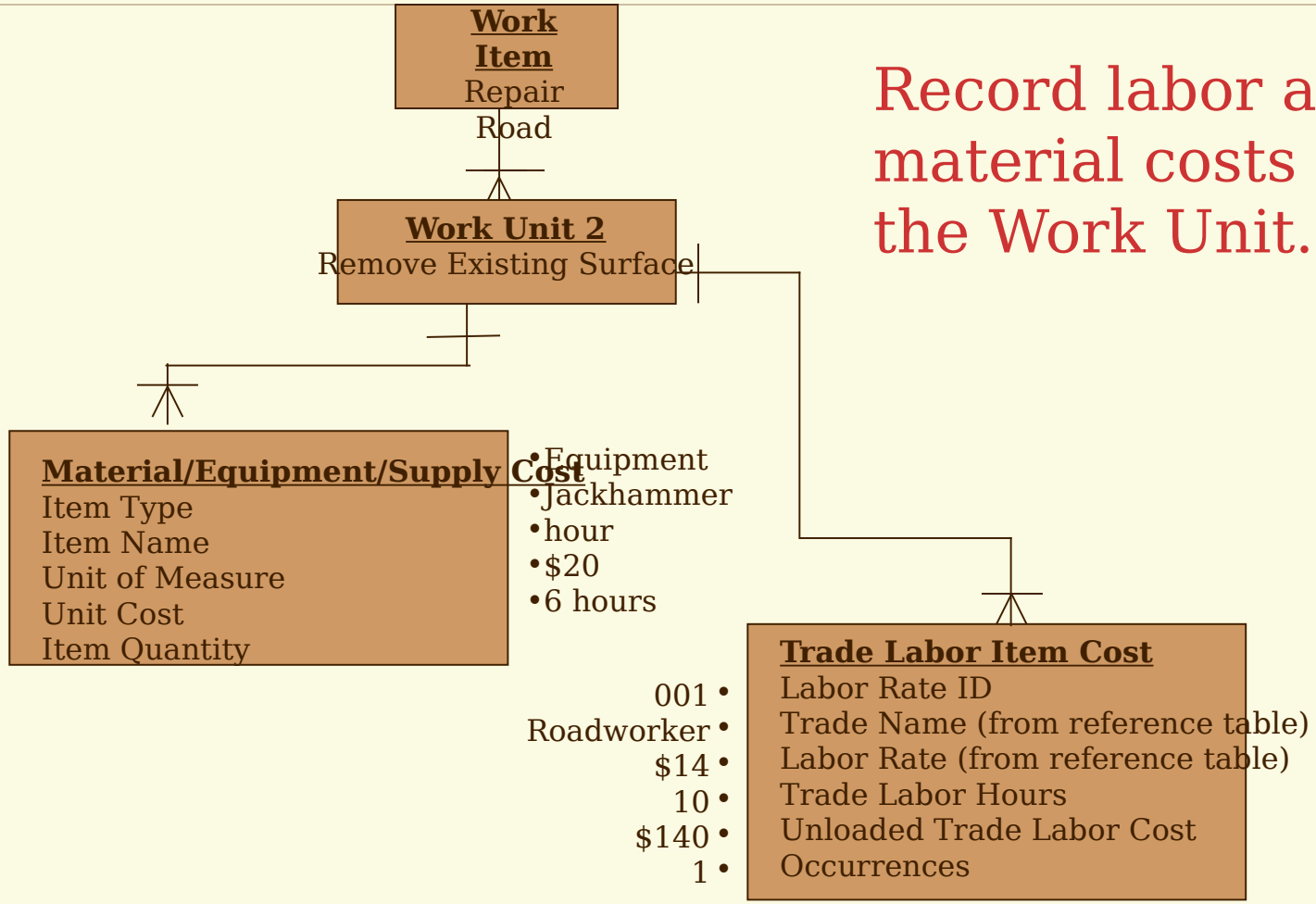
- Demonstrate Work_item flexibility
  - Road Repair Example
- Fund and Contract for Work
- Locate Work
- Conduct Work for Organization/Customer
- Classify Work



Work Item Flexibility: Road Repair

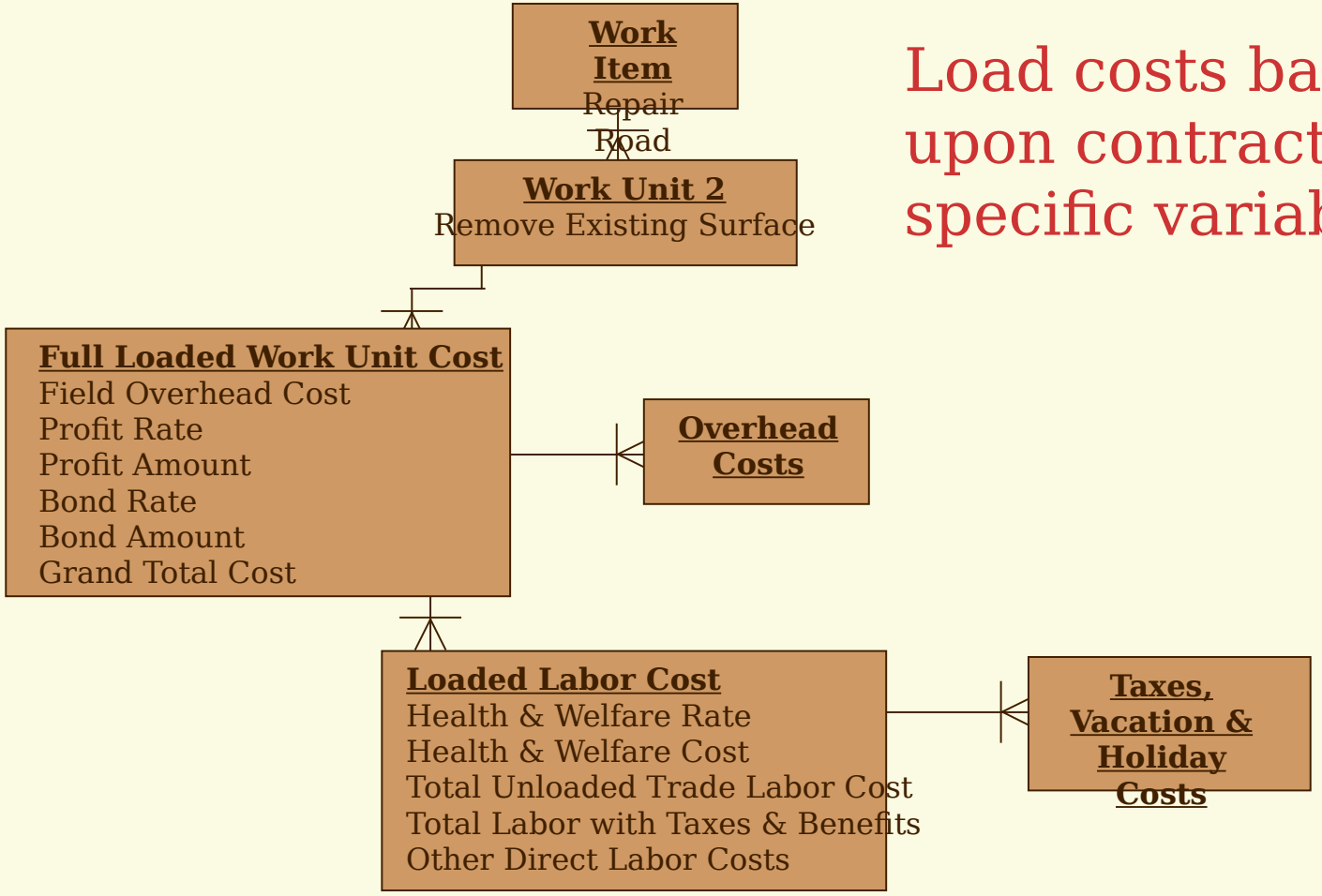


Repair Road: Material and Labor Cost



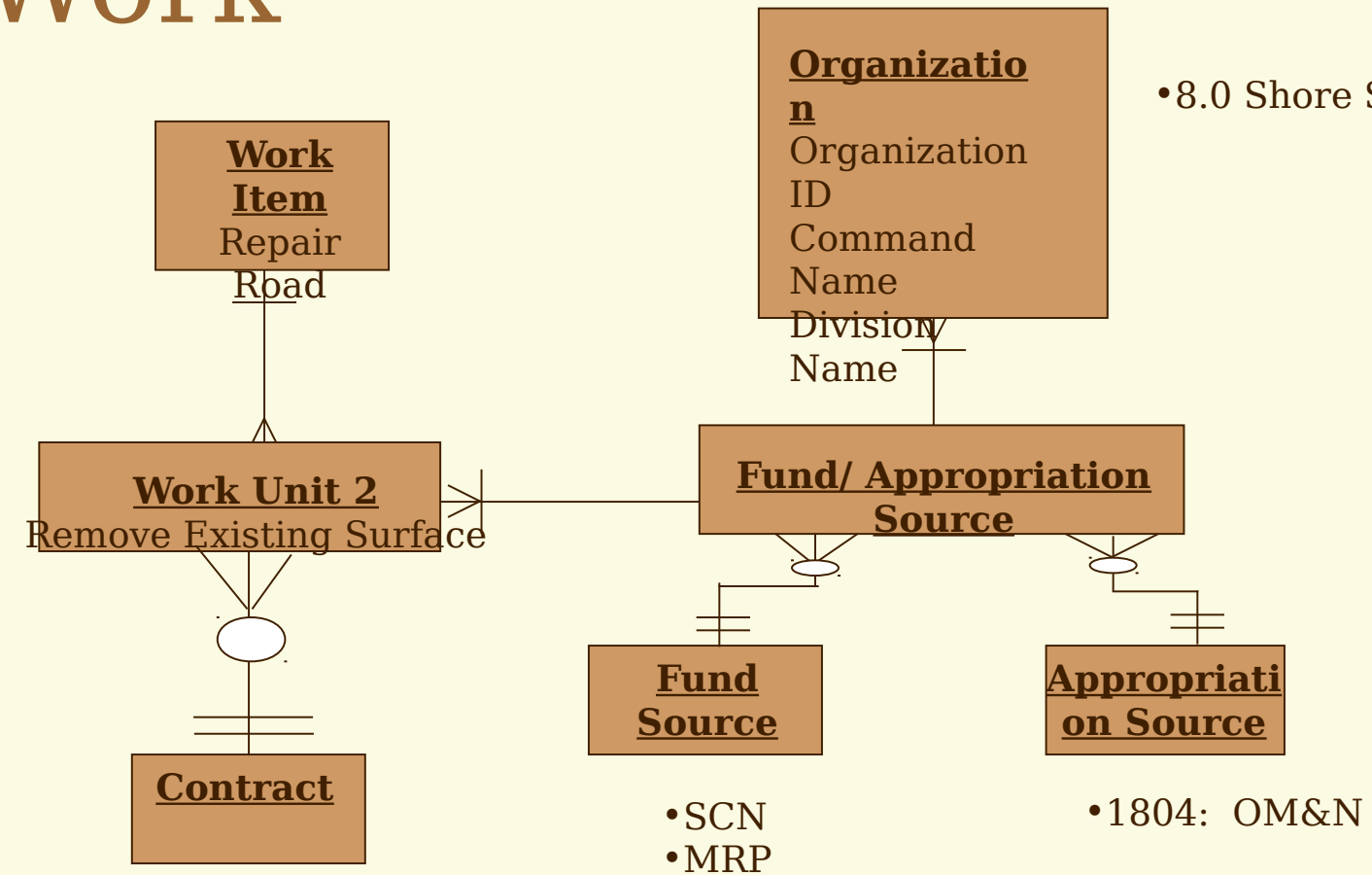
Record labor and material costs for the Work Unit.

Repair Road: Fully Loaded Work Unit Cost

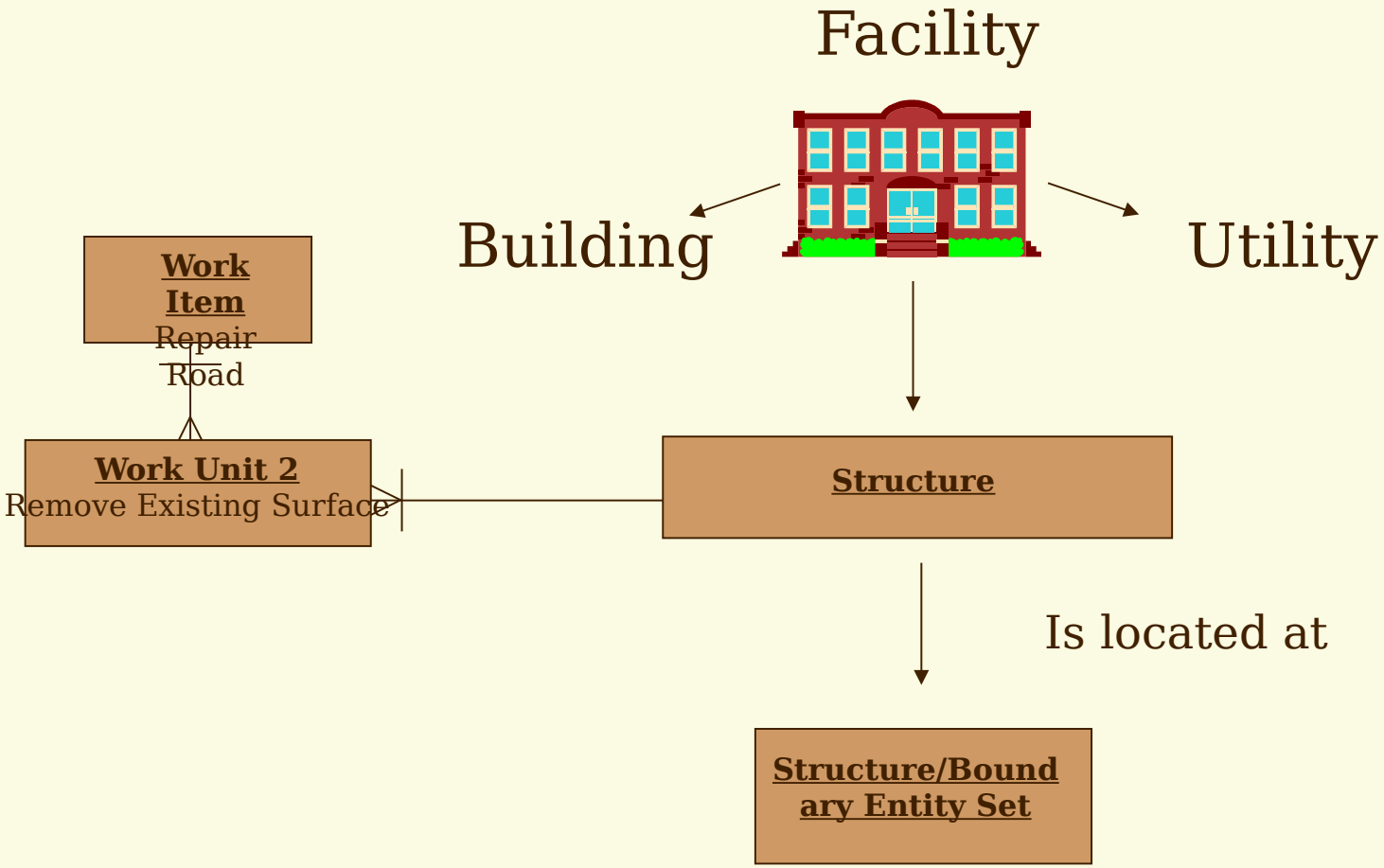


Load costs based upon contract specific variables

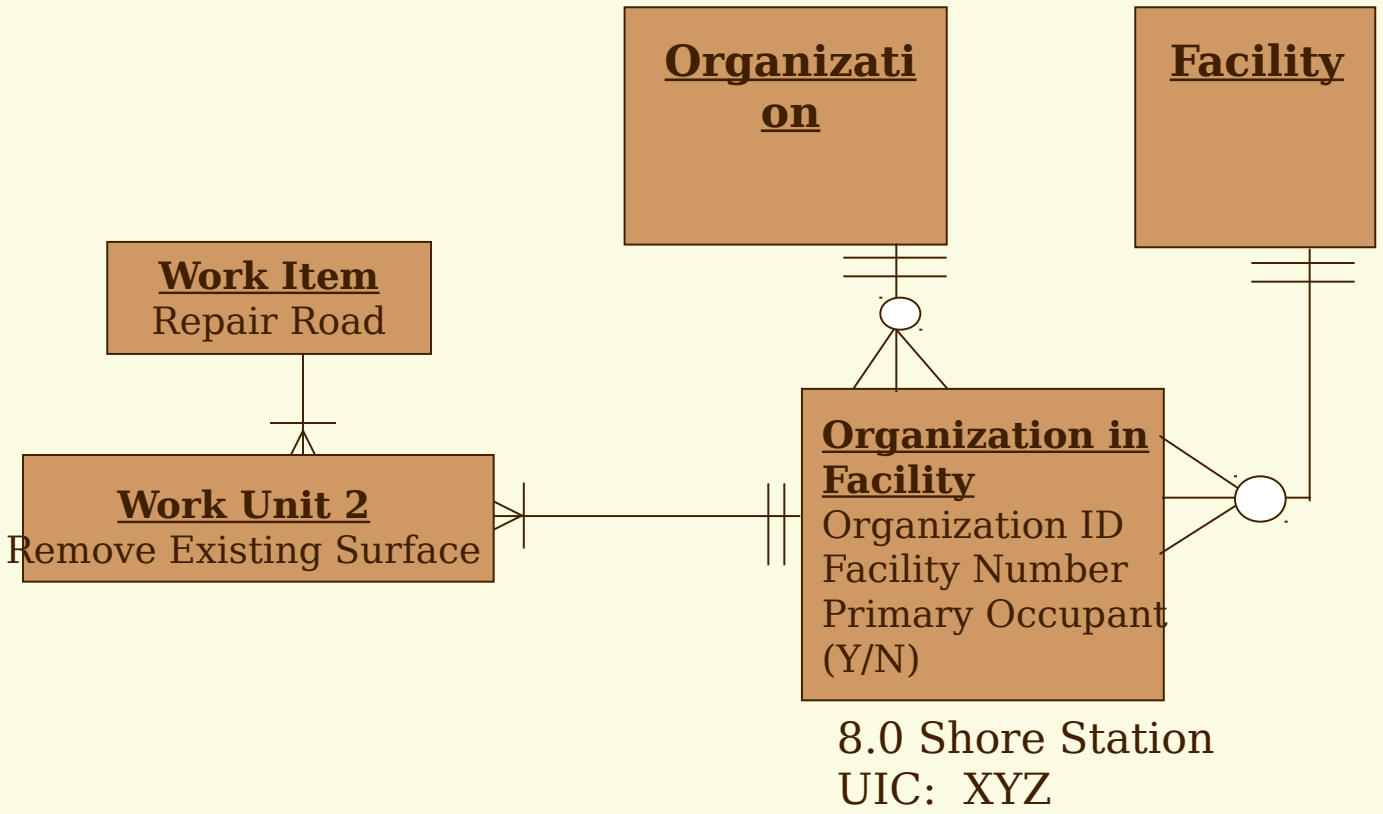
Fund and Contract for Work



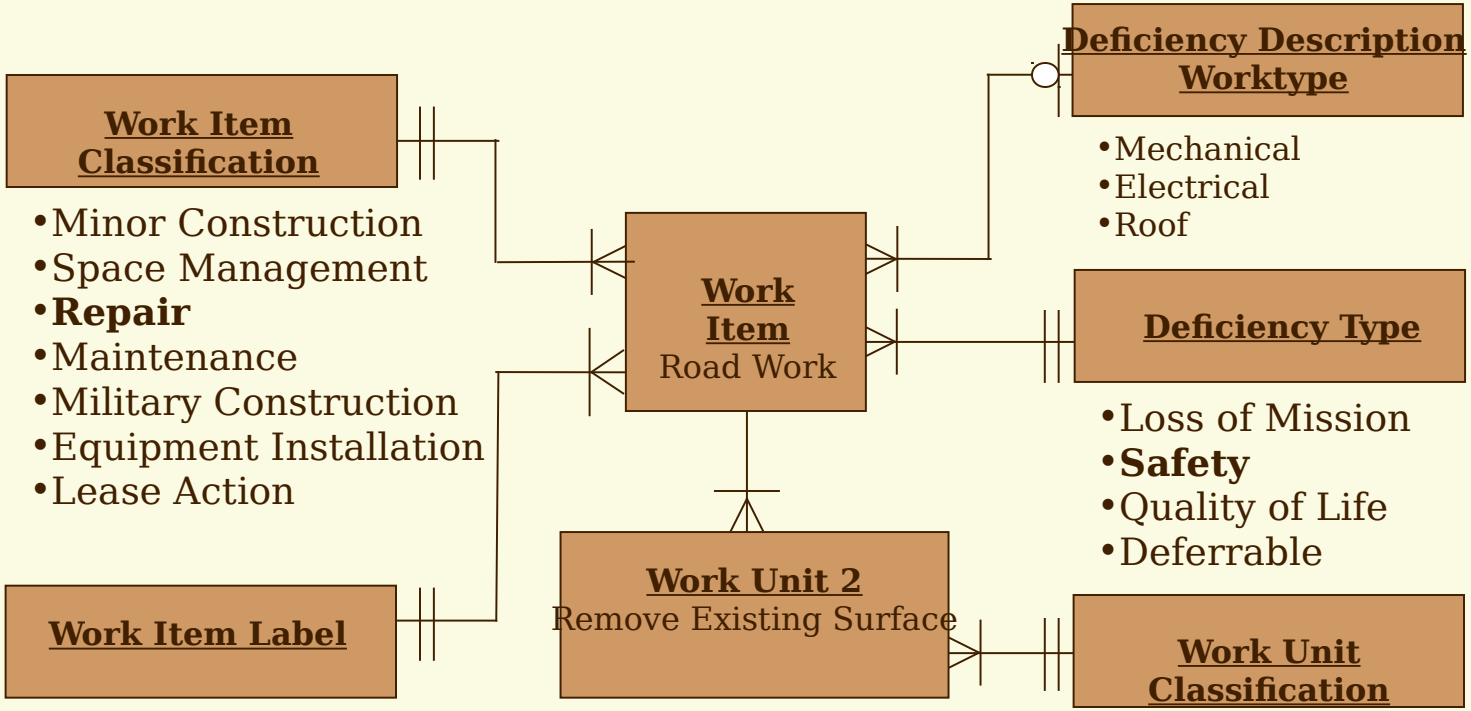
Locate Work


Facility
Building
Utility
Work Item
Repair Road
Work Unit 2
Remove Existing Surface
Structure
Is located at
Structure/Boundary Entity Set

Work is Performed for a Customer/Organization



Work is Classified



Steps and Next Steps

- Technical group of the Center has endorsed the concept of adding a Work Item Entity Set to the TSSDS. (February 1998)
- Task group of the FM FWG Adoption of the Concept for Work-Item as an Entity Set.
- Collect thoughts and comments for improvements.
- Review and Brief to the FTAG in Joint May Meeting.
- Produce first version for release December 1998.
- Comments and Suggestions! What do you think ?

Appendix A: How to Read a Data Model

- A logical data model is a representation of all the data required to support business operations without any consideration of hardware, software, or other physical implementation details. Data modeling is the process of structuring a database to meet data and program objectives. Objectives may include less data redundancy, use of common data definitions, support for functional requirements, and more flexible access to the data of the organization. This project is developing a logical data model to represent Facility Management data requirements.

- A logical data model contains data entities and data relationships and is graphically depicted by a data entity relationship diagram (ERD).

How to Read a Data Model

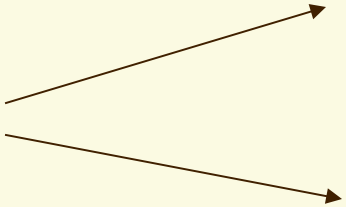
- The boxes in the data model represent data entities. Data entities are the persons, places, things, concepts, and events about which information is needed. In the context of Facilities Management, managers need information about an ORGANIZATION (person), a FACILITY (place), and WORK ITEM.

- Each data entity is described by a set of data elements or attributes. Data attributes are unique properties of entities. An attribute is the most detailed unit of information about an entity; it cannot be broken into parts that have a meaning of their own. For example, our model has a data entity called Facility. A few of the attributes that describe Facility include facility name, facility number (property record number), current plant value and replacement value.

How to Read a Data Model

Entity

Facility



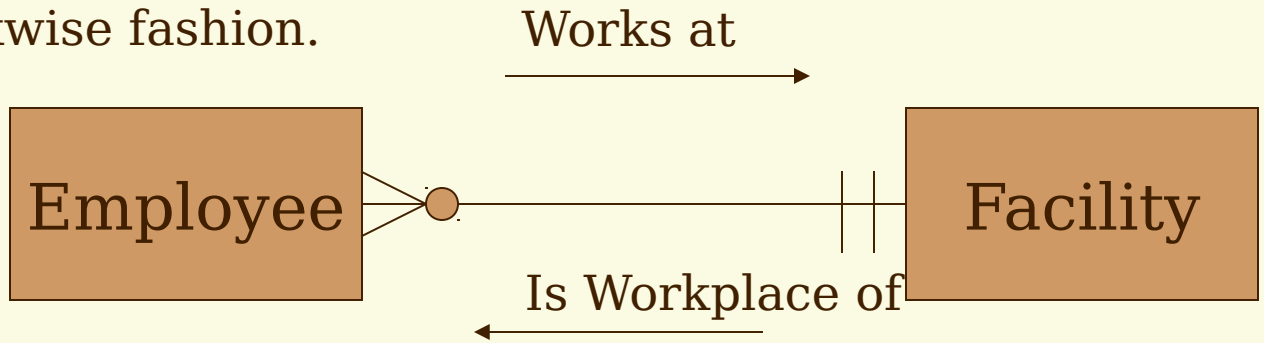
Attributes

* Property record numb
* Facility name
* Current plant value
* Replacement value

How To Read A Data Model

- Data relationships are the associations between data entities, as they occur in the real world. For example, an Employee *works at* Facility, and a Facility *is workplace of* Emloyee. These relationships are depicted as lines joining the boxes in an entity relationship diagram. Two entities joined by such a line are called “related entities.”

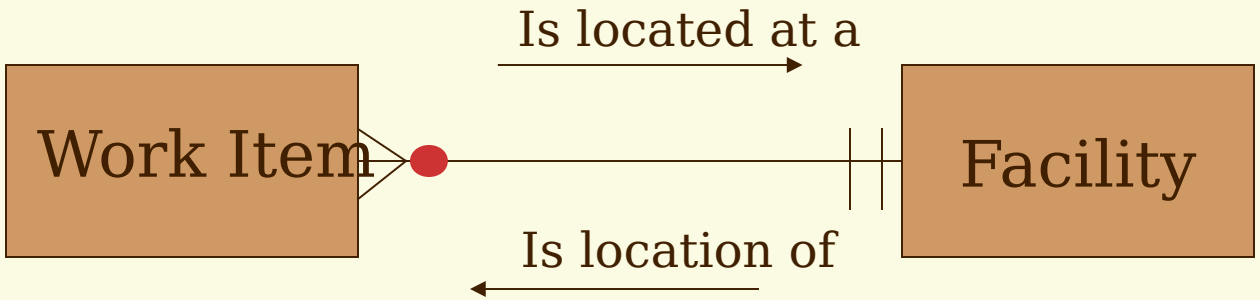
- The relationships in the logical data model are read in a clockwise fashion.



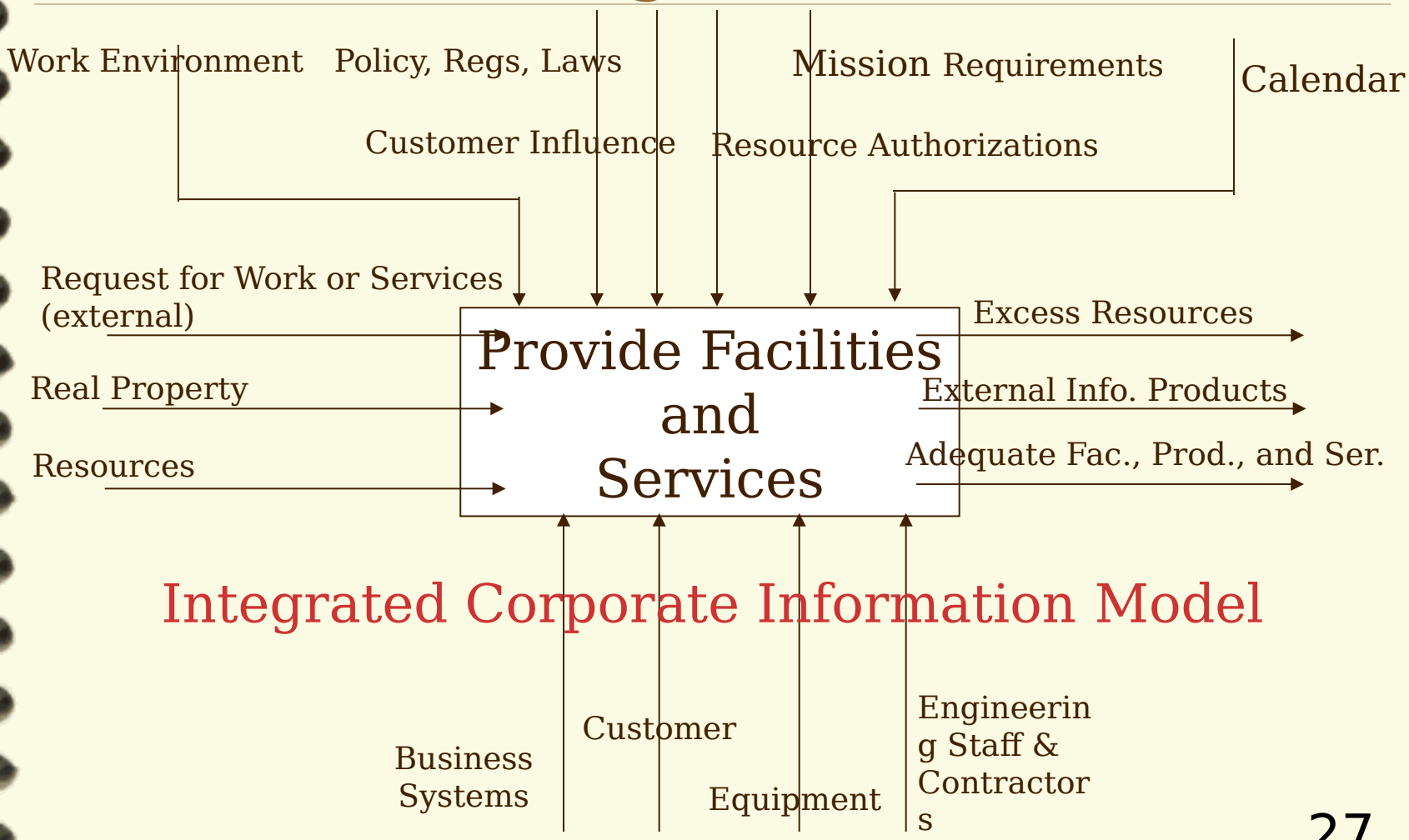
How to Read A Data Model

- Here is another example, this time using a Shore Station Installation context.

AWork Item *is located at a* Facility, and a Facility *is the location of a* Work Item. These relationships are depicted as lines joining the boxes in an entity relationship diagram. Two entities joined by such a line are called “related entities.”



Process and Data Must Work Together



Integrated Corporate Information Model